Space Weather Forecast

Issued on Wednesday 11 December 2024 at 01:19 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Low to Moderate Solar Activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with four Moderate-class flares observed, mainly originating from a new sunspot region in the southeast. While it is currently the most active of the seven regions currently on the disc, it remains a small and apparently simple region, although this is still difficult to assess due to its location. The region that brought the Strong flare on 08 Dec has now rotated of the western limb, but still brings the potential for some flare activity. The sunspot region in the centre disc is the largest region, but remains relatively inactive, while a further region in the northeast has shown some increasing magnetic complexity, but also remains relatively inactive. The other regions are currently small and simple.

No Earth directed coronal mass ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: Fast winds from a coronal hole gradually eased through the period. Solar wind speeds, eased from slightly elevated levels of around 500 km/s to be largely slow 370-400km/s. Interplanetary Magnetic Field stayed steady in the weak range. The north-south component weakly fluctuated between southward and northwards. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High Energy protons) was initially at background, rising to moderate in the afternoon UTC, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Isolated Moderate-class flares are likely, with a slight chance of Strong-class flares on Day 1 (11 Dec) becoming a chance of isolated Moderate-class flares from Day 2 (12 Dec).

Solar Wind / Geomagnetic Activity: There are no Earth directed CMEs. Influence of the coronal hole sourced fast winds will continue to recede with solar winds likely easing to be background, but with brief periods at slightly elevated remaining possible. Solar winds may increase from Day 3 (13 Dec) due to a connection to the fast winds from another coronal hole.

Geomagnetic activity is forecast to be Quiet with isolated Unsettled intervals. By Day 3 (13 Dec), a chance of isolated Unsettled to Active intervals.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High Energy protons) is expected to persist at background, with only a very slight chance of solar radiation storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	50	50	50
Very Active	R3-R5 (X Class)	No	10	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.